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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,110	02/11/2004	Shigeru Tago	HIRA.0143	3621

7590 06/05/2006  
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EXAMINER

SKIBINSKY, ANNA

ART UNIT PAPER NUMBER

1631

DATE MAILED: 06/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/775,110		TAGO ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Anna Skibinsky		1631	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f):
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Reply to Applicants***

The claims filed March 6, 2006 with amendments to claims 1 and 4-6, and newly added claims 7-8 are acknowledged. Claims under examination are claims 1-8.

Applicants' arguments, filed March 6, 2006, have been fully considered but they are not deemed persuasive. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.
3. Applicant has amended claims 1 and 4 to recite "first text data from said first database which contains a base sequence or an amino acid sequence" (e.g. claim 1,

lines 5-7) and "which contains the base sequence or the amino acid sequence" (e.g. claim 1, lines 9-10). This is deemed new matter in spite of the pointed to section of the specification (page 5, 2<sup>nd</sup> to last paragraph. 201 in Fig. 2 or 401 in Fig. 4). The specification describes a database which contains a nucleic acid sequence but not an amino acid sequence. Though "amino acid sequence" is recited in the specification, it is for "said first database **based on** a base sequence or amino acid sequence" (specification Abstract and original claim 1). Thus, relating to amino acid sequences, the new amendment is not commensurate in scope with the specification as originally filed. Upon review of the disclosure, a description of a database (with text data to be extracted) that actually "contains" amino acid sequences was not found. Thus the amendment is deemed New Matter.

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3, 4, and 6 rejected under 35 U.S.C. 102(e) as being anticipated by Murray et al. (Pub. No. US 2002/0168664, November 14, 2002)

6. The rejection of the prior Office Action is maintained. The amendments to claim 1 and applicants' remarks have been carefully considered but are not deemed persuasive. The reasons for maintaining the rejection in light of the new amendments and remarks are as follows.

7. Applicant has amended claim 1 to recite "a base sequence or an amino acid sequence of a gene or protein of interest inputted by a user". The prior art teaches the facilitation identification of candidate genes from a plurality of DNA sequences (paragraph 0010, lines 1-3). Information from literature databases relating to particular set of DNA sequences is retrieved to facilitate its identification as a candidate gene (paragraph 0011). Thus, the extraction of the DNA sequences in the prior art also contains a base sequence or a gene or protein of interest inputted by a user.

8. Applicant has amended claim 1, to recite "extracting an identifier identifying document data in said first text data from said extracted first text data which contains the base sequence of the amino acid sequence". The prior art teaches extracting information from literature where the extracted information pertains to a gene of interest (paragraph 0013, lines 7-11). Here, the identifier is the gene of interest which is present in the "identifier identifying document".

9. Applicant has amended claim 1 to recite "a second text data extraction step for extracting second text data from said second database which contains said extracted identifier". The prior art teaches the extraction of "one of many literature databases" such as MEDLINE, USPTO, etc. (paragraph 0013, lines 1-7). The prior art also can access, extract, and cross-reference information from a literature database pertaining to

a gene of a known expression pattern. Again, here, the identifier of claim 1 is the gene and the multiple databases accessible by the invention of the prior art provide a first and second database.

10. Applicants have amended claim 1 to recite that the appearance frequency calculation step is for the reading of “keywords of known functions or characteristics of genes or proteins from” the first database and for “calculating a frequency of each of the keywords in the extracted second text data.” The prior art teaches that there is a need for comprehensive collections of entity-relationships amongst genes, functions, roles and pathways. Information or “keywords” are extracted from journal abstracts that describe certain characteristics about genes and information in the articles are ranked as being the “truth” or “false” after being scored (paragraph 0098, line 12 to paragraph 0100). The frequency score can be for the journal titles that contain the articles (Table 1) with the “truth” related to a certain gene. These journal references are stored in database tables (paragraph 0105, line 12 to paragraph 0107). Here, the appearance of words or information pertaining to a gene’s function (e.g. gene is an enzyme) is stored in a table (e.g. EnzymeRef). Each table is then scored based on the frequency or the amount of informational “keywords” it has pertaining to that gene’s function.

11. Applicant states in the last lines of page 8 of the Remarks that known functions may be “cell recognition”, “axon guidance”, etc. However, these are not limitations recited in the claims. Furthermore, characteristics in the prior art such as “role in RNA splicing”, “role in reproduction”, etc (e.g. paragraph 0106) are similarly “known functions or characteristics of genes” as newly amended into the claim.

12. Applicants have amended claim 1 to recite "a display step for displaying a frequency of appearance of each of said keywords in a in a corresponding position in said keyword table". The prior art describes a table of characteristics (paragraph 0106 and Figure 7) where the score for the popularity of each topic is stored under FunctionScore, RoleScore, etc. The table in the form of a tree is displayed in Figure 7 and the score is the frequency that a particular characteristic of the gene has been added to from a database of articles.

13. Newly added claims 7 and 8 recite "a frequency of each category in the keyword table is the sum of frequencies of lower level categories belonging to the category". Figure 7 shows categories within a main category as "Role" that contains a final category "RoleScores". The "RoleScores" contains all of the scores from the each of the possible functions (described on page 12, paragraph 0106, lines 4-11). Here, the "lower level categories" are the specific functions which are scored. The totality of the scores for each of the categories (e.g. development, endocytosis, etc.) are stored in the category called RoleScores.

14. In light of the above analysis, claim 4 is drawn to a program and which contains the same limitations in the body of the claim is as claim 1 is also rejected. Murray et al. teach a computational method with software to accesses a database (e.g. paragraphs 0050 to 0055)

15. The rejections of claims 3 and 6 as recited in the previous Office Action are maintained.

16. On page 8, lines 27-30 of the Applicants response, Applicants argue that "Murray et al. neither link gene/proteins of know function/characteristics with the gene/protein of interest via the particular "base sequence of an amino acid sequence contained in both the gene/protein of interest and the genes/proteins of known function/characteristics." In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., linking of gene/proteins with know functions/characteristics the gene/protein of interest, etc.) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

17. The rejection of the limitations of newly amended claim 1 are recited above where claim 1 does not recited the "linking" of gene of know functions with genes of interest via the particular base sequence or amino acid sequence.

18. On page 9, lines 4-5 of Applicants response, Applicants argue that "Table 1 of Murray et al. (cols. 18-20) only shows scores of journals, which is essentially different from the keyword table 110 (Fig. 5) of the inventions." The new amendments to claim 1 have been considered and the basis for the rejection has been changed to a different section of the prior art. The new basis for rejection is recited above.

### ***Claim Rejections - 35 USC § 103***

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:



(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

21. Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murray et al. (US Pub. 2002/0168664) as applied to claims 1, 3, 4, and 6 above in combination with Getchius (US Patent No. 6,519,592).

22. The rejection is maintained for reason of record in the previous Office Action.

23. The "tree structure" recited in claims 2 and 5 and throughout the specification have been interpreted to mean a computational data structure that has the form of a tree. This is a generic type of structure used in the computational arrangement and accessing of data. It is obvious to one of skill in the computational art that text data, keywords, and sequences related to any topic including genes can be organized in the form of a tree structure. A tree structure allows computational data to be organized, categorized, and accessed efficiently by a user. The art of Murray et al. relies on computational analysis and clustering of data in a database (Murray et al. paragraphs

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0044-0045) where a result is a tree-like classification of gene characteristics (Figure 7).

Thus, it would be obvious to use the tree structure database of Getchius who also relies on computational analysis and clustering of data since a tree structure is a generic computational data structure for organizing any form of computational data (Getchius et al. Abstract and col. 1, line 48 to 2 line 6). Getchius teaches that the tree data structure is used as a part of an on line query tool while Murray et al. also teach a web-based (URL) query tool (Murray et al. paragraphs 0052 and 0056). Furthermore, a tree structure does not depend on the type of data stored therein but is a data structure especially useful for the organization and query of data. Thus, one of skill in the art would have a reasonable expectation of success at utilizing computational tree structures as described by Getchius to organize the data described by Murray et al.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anna Skibinsky whose telephone number is (571) 272-4373. The examiner can normally be reached on 8 am - 5:30 pm.

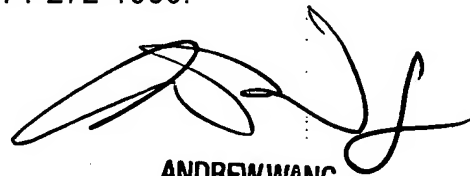
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (571) 272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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